

Sustainability Status and Optimization of the Public Market Performance

Budi Sumantri¹, Siswoyo Haryono¹, Irman Firmansyah²

¹Universitas Muhammadiyah Yogyakarta, Indonesia

²System Dynamics Center, Indonesia

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Daniel V.

ABSTRACT

The application of SNI is indeed to accelerate and facilitate the managing agency in assessing market performance, but in actual conditions in the SNI field, it still needs to be detailed because each criterion still has standards that must be met in more detail. The purpose of this study was to analyze the performance value of the Tempuran Public Market, Magelang Regency based on SNI and the detailed status for sustainability with Multidimensional Scaling (MDS). MDS analysis is used to assess the status of successful implementation and market sustainability. The result of the current combat market value status based on SNI was 56.32 while based on MDS detailing, it was 46.32 and after weighting, it became 45.17. Status improvement was carried out with various scenarios for a detailed MDS assessment. Optimal scenarios in the short term could be increased to 54.76, so that this increased the status from less sustainable (unfavorable) to sustainable (good), whereas if the overall important factor policy was applied it could be increased to 72.17. The policy scenario of the Tempuran Market management was to prioritize economic aspects, technical aspects and other aspects followed. Leverage factors from each of these aspects included increasing revenue from market management and digitization, technical management specifically for meat storage, security and community management, parking management and market cleanliness management.

JEL Classification: E42, G15, O16

Key words: Traditional Market–Indonesian National Standard–Multi Dimensional Scalling

1 INTRODUCTION

The existence of a market in an area has always been a focus point that functions as a center for the exchange of goods from a group of traders in strategic locations that sell merchandise in groups and then it develops [1]. Sustainable market development and management contains three main pillars, covering economic, environmental and social dimensions. In order to make development sustainable, ideally the benefits must be continuous and sustained [2]. This means that development must meet various objectives in a balanced manner for economic, environmental and social goals. The concept of sustainable development has been widely applied in various sectors and fields along with increasing awareness of the importance of sustainability [3, 4].

The existence of modern markets has displaced the existence of traditional markets. This is due to the fact that people tend to be more interested in shopping at modern

markets because in modern market the level of comfort is higher than that in traditional markets [5]. Moreover, this is also due to the general conditions of traditional markets that are not well organized, like the large number of garbage piles scattered, and dirty and uncomfortable place which are as if attached to the traditional market picture. According to Maharani [6], management based on SNI aims that traditional markets are able to compete with modern markets; in addition, there is a need for partnership programs between modern markets and traditional markets (street vendors and Community Activity Units). To facilitate market players in managing and building public markets and empowering the market community, SNI (Indonesian National Standard) was arranged by integrating these regulations. SNI standard is expected to be a reference so that the public market becomes the home of Indonesia's economy and culture that has competitiveness maintaining local wisdom.

The application of SNI 8152: 2015 on Public Markets has governed how to manage and assess market status, but only on general, technical and managerial aspects. The expectation of SNI is indeed to accelerate and facilitate the management agency in assessing market status and performance, but in actual conditions in the SNI field it still needs to be detailed because each criterion still has standards that must be met in more detail, not just assessments and not. This study was conducted in order to make market evaluation more actual in the field. Based on the above considerations in describing SNI properly in order to be sustainable, it is then needed social and economical aspects, as well as a detailed assessment. The purpose of this study was to analyze the performance value of the Tempuran Public Market, Magelang Regency based on SNI and the detailed status for sustainability with Multidimensional Scaling (MDS).

2 METHODOLOGY

The study was conducted at the Tempuran Market located in Magelang Regency. This is to see the status of SNI values and the successful implementation and sustainability of the Tempuran Market in Magelang Regency. A good method to optimize the implementation of SNI in public markets is by MDS (Multidimensional Scaling). MDS sustainability analysis of the SNI implementation in the public market is carried out through several stages, namely the stage of determining the attributes of functions covering three dimensions (dimensions of general, technical and management requirements). Dimensions of general requirements can be seen from the location of the market, cleanliness and health, safety and comfort. For technical requirement, it determines several variables that form the technical sustainability, such as the availability of APAR, parking capacity and others, while the management requirement dimension is generally management, including the amount of human resources. This study also developed a model for evaluating the status of sustainable market performance by adding 2 aspects, that is, social and economic.

The Multidimensional Scaling (MDS) method can broadly cover the factors related to the dimensions of the public market requirements in SNI by determining the two points which are the basis of reference, that is, good and bad. This method is basically a multivariate method that can handle non-parametric data and is also known as one of the ordinations in reduced space. Ordination itself is a process in the form of plotting point objects (positions) along the axes arranged according to a particular relationship (ordered relationship) or in a graph system consisting of two or more. The advantage of this method is that it can encapsulate multidisciplinary data obtained from the field so as to produce a lot of quantitative and qualitative information. Approaches with this method have been developed to analyze various things including the development of local economies [7], consumer perceptions [8].

MDS analysis is the one used to assess the status of successful implementation and status of market sustainability by using the MDS Exsimpro (Multidimensional Scaling)

Software which was developed for general evaluation of sustainability functions. Indicators on the Exsimpro MDS can be developed in either 3 aspects of SNI, namely general, technical and management requirements, and can also be added as well as other main sustainability aspects, namely economic and social institutional aspects. The results of the analysis are done by looking at the comparison of market status based on SNI and comparing with the details of SNI implementation and the development of sustainability aspects. These results are key factors in the status of market performance and its sustainability status. MDS analysis was developed from expert opinion in FGD.

The number of respondents was taken by purposive sampling, with the criteria of understanding the Tempuran Market conditions. The respondents included the Head of Market, 5 representatives of traders based on the group of goods sold as well as representatives of the Tempuran Market Association group.

From the results of MDS analysis, there will be obtained Kavanagh and Pitcher [9]: (1) the status or index of each dimension, (2) leverage attribute / sensitive attribute, which is an attribute that needs to be corrected in order to improve the index value and status of each dimension and (3) strategies for obtaining the sustainability status of the implementation of SNI for Tempuran Market status in Magelang regency. The sustainability categories used are divided into four, as presented in Table 1.

Table 1. Sustainability Status Category SNI Implementation of Tempuran Market Status

Index value	Category
0 < 25	Unsustainable (Bad)
25 ≥ Index value < 50	Less sustainable (Less)
50 ≥ Index value < 75	Quite sustainable (Good enough)
75 ≥ Index value ≤ 100	Very sustainable (Very good)

3 RESULTS AND DISCUSSION

3.1 Performance Status Assessment of Tempuran Market

Assessment of SNI in general (Average Dimension SNI and Average Factor SNI) is taken from the direct evaluation method from the assessment guidelines on SNI 8152: 2015. Of the three aspects (general, technical and management aspects), if quantified from the guideline, it can only assess two aspects and some of the assessments are only available or not available. In reality, however, it is not only about available and not available, there must be according to needs based on the type, extent and market needs, for example APAR, it not only about available and not available, but the amount according to market area while the MDS-SNI and MDS-SNI Detail are developed from the MDS method, meaning that the SNI has been detailed based on real needs and conditions in the field. The difference in the MDS-SNI remains 3 aspects in accordance with SNI 8152: 2015 while

in MDS-SNI Detail, it is more detailed because it has considered sustainability aspects with additional social and economic aspects. By using MDS, scenarios can also be done to increase the status of a real program based on the level of actual need to increase its value. In detail all assessments are presented in Table 2.

Table 2. MDS and SNI Analysis Calculation Results

Dimension	MDS-SNI	MDS-SNI Detail	SNI Average Dimensions	Average Factor
General	56,25	56,25		
Technical	42,12	42,12	59,41	59,41
Management	37,41	37,41	47,22	47,22
Social	60,42			
Economy	35,42			
Sustainability Status	46,32	45,26	53,32	56,86

Assessment of the Tempuran Market sustainability status is based on SNI and MDS methods. The result of the evaluation of technical aspects in the SNI method was 59.41 while the management aspects were 47.22. When referring to the sustainability value standard status with MDS, the result of the assessment of the technical dimension was 42.12 and the result of the assessment of the management dimension was 37.41. The value of MDS-SNI Detail sustainability is overall for the Tempuran Market, that is, 46.32 so that its sustainability status is less sustainable. Assessment of sustainability status with MDS-SNI Detail for Tempuran Market used assessment of general, technical, management, social and economic aspects. Comparison of status assessment of the Tempuran Market is based on the MDS method (MDS-SNI and MDS-SNI Detail) and SNI evaluation in general as presented in Figure 1 .

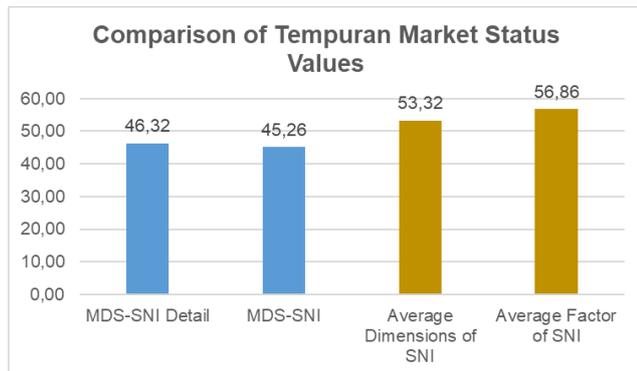


Figure 1. Comparison of Tempuran Market Status Values with Various Methods

If it is depicted with an elevated diagram for the position of sustainability status, it can only be illustrated by the MDS method. The elevated diagram of the results of MDS analysis for MDS-SNI is presented in Figure 2 and MDS-SNI Detail in Figure 2 .

MDS analysis result for the status of sustainability performance of the general aspects at this time was still quite

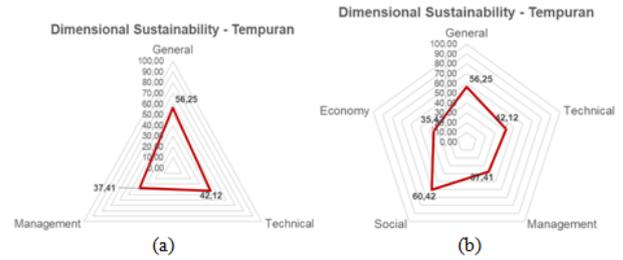


Figure 2. Fly Chart of MDS-SNI Analysis Results (a) and MDS-SNI Detail (b)

sustainable with a value of 56.25 but the sustainability needed to be maintained by taking into account the leverage factor because it was vulnerable to change and it was close to the value of 50. For technical aspects, it was less sustainable with a value of 40.44 . The value of sustainability needed to be improved so that its status could be quite sustainable while the management aspect was less sustainable with a value of 37.41. For additional complete assessment of the MDS method with the status of social and economic aspects, the social aspect of the Tempuran Market based on the MDS analysis was quite sustainable with a value of 60.42 while the current economic aspect was less sustainable with a value of 35.42.

3.2 Leverage Factors for Sustainability

To find out more detailed factors of the sustainability value, it can be seen from each value position of each forming factor in all aspects of sustainability assessment.

3.2.1 General Aspects

General aspects are strongly influenced by factors that have high sensitivity values and have not been fulfilled and have been deepened during observation and in-depth interviews. These factors include the place of meat sale and the place of fast food sale while in-depth interviews air circulation factors are important to note although it is not the highest sensitivity. Generally, several Public Markets that have been designed based on the concept of the center do not provide comfort in air circulation. This is in line with the research done by [10], which showed that the market building in general has a large enough opening seen from the value of good performance, but the handling is not felt comfortable by the user. This can be seen from the value of respondents who are below 0.5. Moreover, this gives an illustration that the possibility of air circulation has not gone well due to other factors, such as wind movement other than large openings while the building material has a high value but it is difficult to make changes. The sensitivity bar graph of the general aspects of the Tempuran Market is presented in Figure 3 .

3.2.2 Technical Aspects

The technical aspects are also strongly influenced by factors that have the highest sensitivity value and have not been

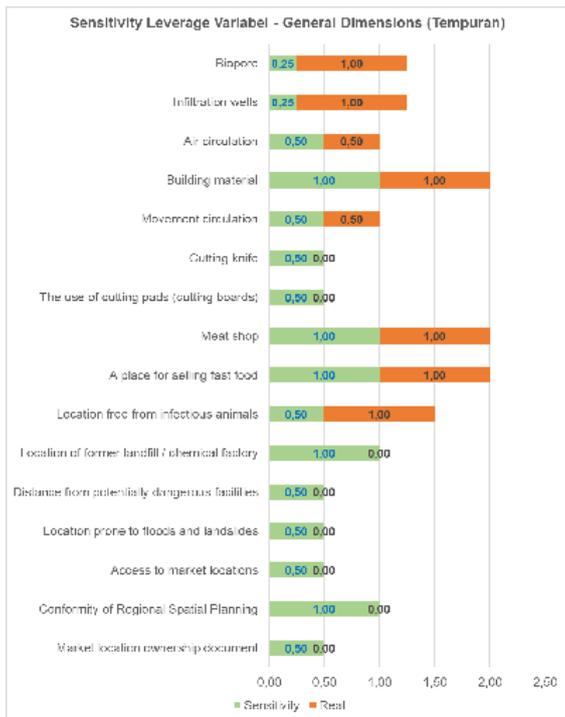


Figure 3. Sensitivity Diagram of General Aspects

met. In this case the factors of storage of wet food with low temperature and loading and unloading areas were the main factors that must be considered. These factors must be considered for the sustainability of general aspects. According to Haq, Septinova [11] factors after slaughtering that affect the quality of meat include withering, electrical stimulation, cooking methods, carcass pH, and meat, additives including meat-thickening enzymes, hormones, and antibiotics, intramuscular fat, and storage method while in-depth interviews the number of CCTV factors was important to note although it was not the highest sensitivity. The existing wet food storage area was usually owned by traders personally whereas according to SNI 8152: 2015 there must be a low temperature of wet food storage area. Next is the loading and unloading area that must be provided with a special place. According to Hari et al. (2015), the loading and unloading area can be in the middle of the market area to facilitate supervision and facilitate outreach to all sides of the market. When merchandise arrives, the car goes directly to the loading and unloading parking area and after that the goods are unloaded and taken directly to the warehouse to be sorted. After the goods are sorted, they are directly distributed to stalls and market stalls for sale, but for the Tempuran Market, it is sufficient in the back area because it is not possible with the existing buildings. A sensitivity diagram of the technical aspects of the Tempuran Market is presented in Figure 4.

3.2.3 Management Aspects

The management aspect is strongly influenced by several factors, namely market zoning information, price range in-

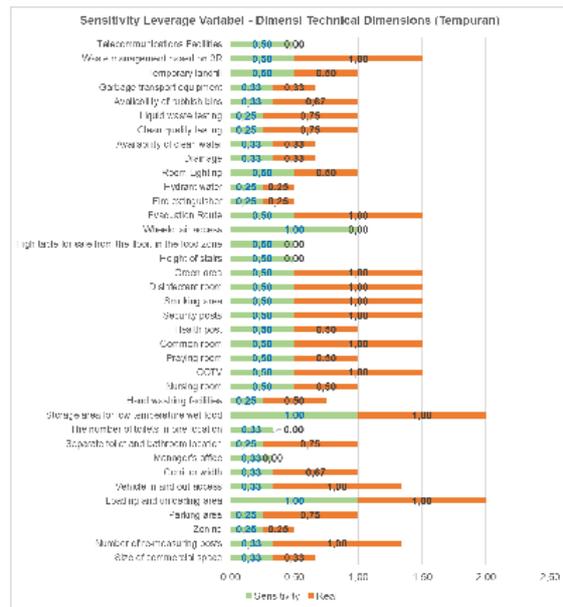


Figure 4. Sensitivity Diagram of Technical Aspects

formation, and market development and activation programs. Market zoning information is very helpful and makes it easier for buyers or visitors when looking for the location of the seller to be addressed, and so that there is no irregular mobilization of visitors. For information on price range, it is very helpful for traders and buyers so that there is no unfair price competition. Hence, there will be mutual pressure among traders. These factors need to be considered because they determine the sustainability of market existence in the future. The sensitivity diagram of the management aspects of the Tempuran Market is presented in Figure 5.

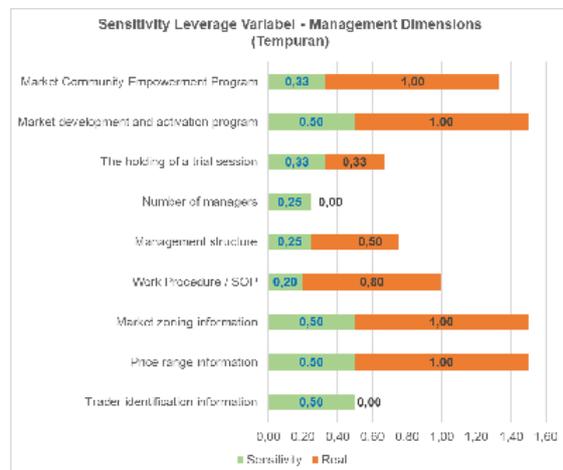


Figure 5. Sensitivity Diagram of Management Aspects

3.2.4 Social Aspects

The most influential factor for the social aspect is counseling to increase welfare, and other factors based on the In-

depth Interview are associations, market security and conflict events. Counseling to improve welfare plays a role in the sector of how income is better. Generally competition with online merchants can be done from home enough, so it is important to carry out a counseling to have some understandings of traders to start with minimal technology while in the side of market management, this helps provide the digitization facility. On the other hand, conflicts among internal traders, such as the result of a study by Fitriyati, Adnan [12] showed that increasingly fierce competition often leads to conflicts and disharmony relations among traders. With a percentage of 61.1%, traders agreed that competition among traders was increasing, and the number of traders who feel the impact and who do not feel it was not much different. However, more traders feel that the lack of buyers had made competition among traders increase.

Strengthening the community becomes important so that market management is always the same as the objectives to be achieved. With the existence of the community, this will indirectly reduce crime and conflict among traders. The vulnerability of unhealthy trade competition to bring down each other can lead to this conflict not to mentions disharmony in grabbing the number of customers. In addition to cooperation in overseeing the market revitalization process, the association of traders also plays a role in providing bridging entrepreneurship training to market traders [13]. Sensitivity diagram of the social aspects of the Tempuran Market is presented in Figure 6.

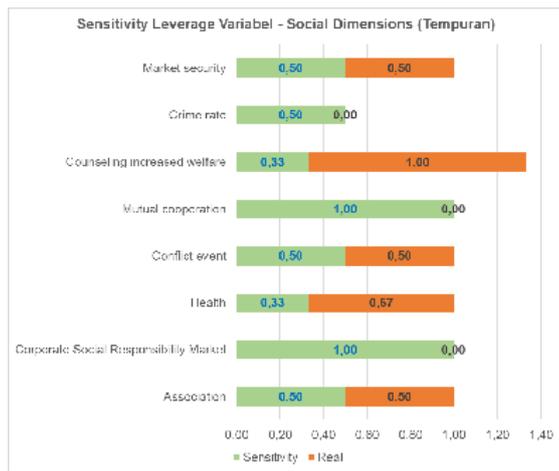


Figure 6. Sensitivity Diagram of Social Aspects

3.2.5 Economic Aspects

The most influential factor for the economic aspect is market cooperatives, and another factor is the income of traders based on the In-depth Interview, in which the current income of traders is that there are modern market rivals that are too close together. Furthermore, there is also market digitalization competition. If it is not strengthened by digitalization, it will be greatly displaced by online merchants even though they do not have kiosks, especially for durable goods Figure 7

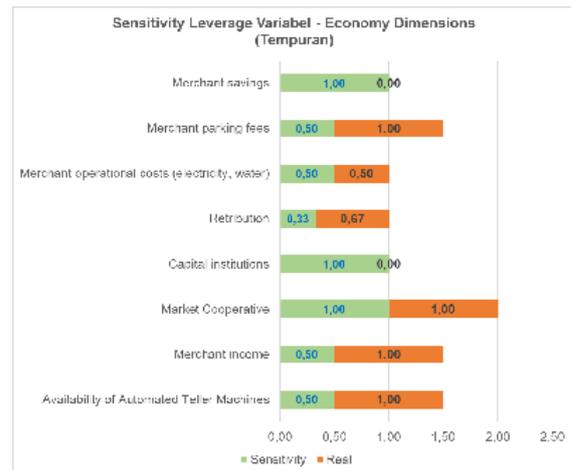


Figure 7. Sensitivity Diagram of Social Aspects

The role and benefit of cooperatives are very important because cooperatives open the gates of Small and Medium Enterprises (SMEs), create independent communities, drive the economy to create new jobs, for example the existence of Srinadi Klungkung Market Cooperative in 2012-2014 showed the level of cash turnover and accounts receivable turnover had a significant positive effect on economic profitability while the level of liquidity and cooperative growth does not significantly influence economic rent ability (Hadinata and Wirawati, 2016). With the existence of market cooperatives, this will make the cooperative function as an economic institution looking for benefits, in which its benefits are for the welfare of the members in particular and the surrounding community in general. Sensitivity diagram of the economic dimensions of the Tempuran Market is presented in Figure 7.

Competition due to the closeness of modern markets greatly affects the income of traders in the public market, especially with the same merchandise. This is in line with research by Sarwoko [14] that the presence of modern retail brings the impact of increased competition in getting consumers, so traders in traditional markets try to reduce profit margins through a bargaining mechanism. In the research of Sadino and Syahbana [15] generally the distance among shopping places in adjacent urban areas causes the range of services to overlap one another. In the research of Nugroho, Harun [16], the settlement model that can be done in resolving these conflicts is the establishment of a modern market by complying with applicable regulations, selling merchandise of the type in traditional markets, having a good working relationship with traditional market traders and small traders around it, and limiting operational hour.

3.3 Policy Scenarios and Strategies

Based on the results of sensitive factor analysis, a scenario assessment is carried out to improve the performance status of the Tempuran Market, both the overall status value and the performance status value among aspects. As for the

weighting value and scenario value results from sensitive factors, an increase change in status value and its scenario are presented in Figure 8.

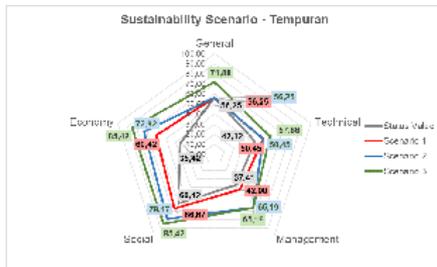


Figure 8. Flyover Chart of Sustainability Status with Various Scenarios

The policy scenario is carried out on the most sensitive factors by increasing the score of the existing value to the maximum value of the sensitive variable, in which these factors include trader income, counseling to increase welfare and market cooperatives. Then it is followed by the existence of market zoning information and market price range information. Sorting the measuring strategy is according to the primary needs of traders and market managers, then followed by consideration of the value of sensitivity. The inter-aspect needs assessment is assessed by stakeholders who are interested in the FGD, so there is a weighting of the importance of the inter-aspects according to the conditions and needs of the Tempuran Market.

The strategy can be seen from the leverage factor and the value of the scenario that will be selected and based on the conditions of the needs of the FGD results. The priority strategies include:

Arrangement of operating hours among mini markets and the Tempuran Market, in which in the morning Public Market – Tempuran Market is more dominant so that buyers go there while at 10 or 12 and above, minimarket is dominant, so buyers can buy there.

Increasing the market digitalization program, which can make businesses in the public market not compete with home personal actors who do not have kiosks.

Provision of storage for meat, which can be done so that the Tempuran market status increases in value, moreover, it can help the storage needs of meat traders

Implementation of CCTV facilities, which can improve market security so that sellers feel comfortable and minimize criminal intentions from market activities

Activating the role of the community, which will play a role in increasing the familial ties of the traders, caring for each other, mutual cooperation in solving problems that arise in managing market activities

Realization of the arrangement of motorized parking lots, which can make the arrangement better with the capacity and place that have been determined for keeping vehicles in the market

Parking management operation, which is intended to make parking rates for market traders not high because the traders always keep their vehicles there everyday.

Improvement of cleaning staff, in which there is currently only one person who is considered lacking in cleaning management so there is a need to increase cleaning staff including portable waste management facilities.

Improvement and control of drainage channels, which can avoid water blockage because current channels need to be fixed to improve the connection from the market drainage to the main drainage. Furthermore, garbage or sediment control is also needed to perform in the drainage channel.

4 CONCLUSION

The conclusions from the status assessment of the Tempuran Market include: The status of the Tempuran Market value is currently 45.17. With the direction of the short-term program, it can be increased to 54.76 while the short-term and medium-term programs can be increased to 64.05, and with the direction of the short-term, medium and long-term programs can be increased to 72.17. The most sensitive value is the economic aspect because with the first scenario, this can increase 61.29 from the percentage of the initial status at the moment, so non SNI aspect, like economics is important to observe while the next most important is that the technical aspect is as a condition to fulfill the good market standards.

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